

Remarks

The Examiner rejected claims 1, 8 and 9 under 35 U.S.C. 102 (b) as being anticipated by Striker. Applicants respectfully still maintain for the reasons set forth in Amendment A that Striker does not anticipate claims 1, 8 and 9 of the present invention.

To facilitate prosecution, however, claim 1 has been amended to include the limitation of claim 2, and claim 8 has been amended to include the limitations of claim 12 and intervening depending claims to it. The Examiner has indicated that claims 2 and 12 would be allowable if rewritten in independent form, including all of the limitations of the base claim and intervening claims.

In view of the above, it is respectfully maintained that presently amended independent claims 1 and 8 are in condition for allowance. A new claim 2 has been added to depend from claim 1; and accordingly, should also be in condition for allowance.

The Examiner rejected claim 10 under 35 U.S.C. 103 (a) as being unpatentable over Striker in view of Oudet et al. To facilitate prosecution, dependent claim 10 has been cancelled without prejudice. Accordingly, this rejection has been rendered moot.

The Examiner has rejected claims 11 and 15 under 35 U.S.C. 103 (a) as being unpatentable over Striker in view of Herden et al. To facilitate prosecution, claims 11 and 15 have been cancelled without prejudice. Accordingly, this rejection has been rendered moot.

The Examiner has indicated that dependent claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, dependent claims 16 and 17 have been cancelled and rewritten as new independent claims 18 and 19 respectively.

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For all of the above reasons, reconsideration by the Examiner, allowance of the claims as now presented and passing of the case to issuance are respectfully solicited.

Respectfully submitted,



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MAILING CERTIFICATE

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10/18/05
Date

COMPLETE LIST OF CLAIMS

1 1. (Currently Amended) A method of indicating the angular position of a
2 rotatable member comprising the steps of:
3 taking a magnet,
4 mounting the magnet on a rotatable member,
5 taking a stator formed of magnetic material,
6 configuring the stator to direct the magnetic field to form a first angular
7 location of the stator in which the strength of the magnetic field varies with the angular
8 position of the rotatable member and a second angular location of the stator in which the
9 strength of the magnetic field is generally constant and independent of the angular
10 position of the rotatable member,
11 sensing the magnetic field in the first angular location and providing an
12 electrical output signal proportional to the strength of the field in the first angular location
13 as an indication of the angular position of the rotatable member,
14 sensing the magnetic field in the second angular location and providing an
15 electrical output signal proportional to the strength of the field in the second angular
16 location as an indication of the decay in the magnetic field of the magnet and
17 compensating the first electrical output signal for decay of the magnet by using the
18 second electrical output signal as a correction factor.

1 2. (Currently Amended) A method according to claim 1 in which said magnet is
2 a first and a second magnet, said first and second magnets being fixed diametrically
3 opposed to each other and having the poles in reverse orientation relative to each other
4 along the diametrical direction, further comprising the step of compensating the first
5 electrical output signal for decay of the magnet portions by using the second electrical
6 output signal as a correction factor.

Claims 3-7 (Canceled).

1 8. (Currently Amended) A magnetic position sensor comprising:
2 a stator formed of magnetic material,
3 a rotatable coupling member mounting first and second magnets for rotation
4 about the stator in magnetic field communicating relationship therewith, the magnets
5 being fixed diametrically opposed to each other and having the poles in reverse
6 orientation relative to each other along the diametrical direction, the magnets being
7 movable along a rotation path between two opposite extremities,
8 the stator formed of discrete, separated portions having a first air gap in which
9 the magnetic field varies in dependence upon the angular position of the first and second
10 magnets portions,
11 a tubular yoke of magnetic material defining a space in which the rotatable
12 coupling member and stator are received,
13 a first Hall Effect sensor mounted in the first gap having a first electrical output
14 signal corresponding to the angular position of the first and second magnets portions
15 along the rotational path, and
16 a second Hall Effect sensor having a second electrical output signal fixedly
17 mounted in magnetic field communication relationship with the magnetic field of the first
18 and second magnets in a second air gap formed between the first and second magnets
19 and the tubular yoke at a location at which the magnetic field is generally constant,
20 independent of the angular position of the first and second magnets portions.

Claims 9-14 (Cancelled)

Claims 15-17 (Cancelled)

1 18. (New) A position sensor comprising:
2 a stationary tubular shaped yoke formed of magnetic material,
3 a rotatable coupling member having a center of rotation,
4 first and second movable, arcuately shaped magnets mounted in fixed,
5 diametrically opposed relation to each other on the coupling member and being
6 disposed within and being evenly spaced from the tubular shaped yoke, the magnets

7 each having one side facing toward the yoke and another side facing toward a center of
8 rotation of the coupling member,

9 first and second stator elements formed of magnetic material, each stator
10 element having an arcuately shaped outer periphery radially spaced from a respective
11 arcuately shaped magnet on the side of the magnet facing the center of rotation, first
12 and second stator elements being spaced from one another forming a first air gap,

13 the coupling member rotatable to move the magnets between first and
14 second extremities in an open space between the yoke and the stator elements,

15 a first Hall Effect sensor having a first electrical output disposed in the first
16 air gap exposed to magnetic flux which varies with the rotatable position of the magnets
17 and a second Hall Effect sensor having a second electrical output disposed between the
18 yoke and the first and second magnets in spaced apart relation thereto, in a location at
19 which the magnetic flux which is essentially independent of the position of the magnets.

1 19. (New) A position sensor comprising:

2 a stationary tubular shaped yoke formed of magnetic material, said tubular
3 shaped yoke being split into first and second spaced apart yoke positions,

4 a rotatable coupling member having a center of rotation,

5 first and second movable, arcuately shaped magnets mounted in fixed,
6 diametrically opposed relation to each other on the coupling member and being
7 disposed within and being evenly spaced from the tubular shaped yoke, the magnets
8 each having one side facing toward the yoke and another side facing toward a center of
9 rotation of the coupling member,

10 first and second stator elements formed of magnetic material, each stator
11 element having an arcuately shaped outer periphery radially spaced from a respective
12 arcuately shaped magnet on the side of the magnet facing the center of rotation, first
13 and second stator elements being spaced from one another forming a first air gap,

14 the coupling member rotatable to move the magnets between first and
15 second extremities in an open space between the yoke and the stator elements,

16 a first Hall Effect sensor having a first electrical output disposed in the first
17 air gap exposed to magnetic flux which varies with the rotatable position of the magnets
18 and a second Hall Effect sensor having a second electrical output disposed in a second

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- 19 air gap between the spaced apart yoke portions in a location at which the magnetic flux
- 20 which is essentially independent of the position of the magnets.